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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,301	01/02/2004	David M. Giorgi	00970.0011-US-U1	8801
22865	7590	12/20/2005	EXAMINER	
ALTERA LAW GROUP, LLC 6500 CITY WEST PARKWAY SUITE 100 MINNEAPOLIS, MN 55344-7704			VANNUCCI, JAMES	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/751,301

Applicant(s)

GIORGI ET AL.

Examiner

Jim Vannucci

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,10-12,14-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 2-9,13,18 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1-2-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16-17, these claims are indefinite because it is not clear how much of an over shoot is an appreciable over shoot.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 10-12, 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minamitani et al.(5,708,676).

Claim 1, figures 6-7 disclose a pulsed laser driver with a slow voltage discharge stage(23b) comprising a first energy storage element(27) having a first energy storage capacity at a first voltage magnitude, a fast voltage discharge stage(22) comprising a second energy storage element(13) having a second energy storage capacity at a

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second voltage magnitude, where given the functioning of the stages as disclosed in columns 15 and 16 it is obvious that the second energy storage capacity can be less than the first energy storage capacity and the second voltage magnitude can be greater than the first voltage magnitude, a switch(8) controlled circuit path, and a laser controllably coupled to the first energy storage element and to the second energy storage element through the switch-controlled circuit path.

A laser diode would be an obvious type of laser to use with the disclosed circuitry since laser diodes are well known in the art.

Claim 10, the first energy storage element disclosed in figure 6 has a capacitor(27) and a pulse forming network.

Claim 11, the second energy storage element disclosed in figure 6 has a capacitor(13) and a pulse forming network.

Claim 12, the laser disclosed in figure 6 is a single laser device.

Claim 14, the laser disclosed in figure 6 is driven by establishing a first voltage magnitude in a first energy storage element having a first energy storage capacity, establishing a second voltage magnitude in a second energy storage element having a second energy storage capacity smaller than the first energy storage capacity where the second voltage magnitude is greater than the first voltage magnitude, and discharging the first energy storage element and the second energy storage element into a laser. Figure 7 discloses the discharge of the first energy storage element essentially furnishing a flattop current pulse to the laser, and the discharge of the second energy storage element essentially establishing a rise time characteristic of the current pulse.

Claim 15, figure 6 discloses a first energy storage element(27) that is a first capacitor with a first capacitance coupled to a first charge source(12), and a second energy storage element(13) that is a second capacitor with a second capacitance that can be smaller than the first capacitance based on the disclosed operation of the device coupled to a second charge source(9). During a discharging step, the discharge of the second capacitor depletes the charge on the second capacitor before a very high current pulse is established through the laser.

Claims 16-17, figure 7 discloses a current pulse with an overshoot attributable to the discharge of a second capacitor.

Claim 19, figure 6 discloses means for establishing a first voltage magnitude in a first energy storage element(27) having a first energy storage capacity, means for establishing a second voltage magnitude in a second energy storage element(13) having a second energy storage capacity where the second energy storage capacity is smaller than the first energy storage capacity and the second voltage magnitude is greater than the first voltage magnitude, and means for discharging the first energy storage element and the second energy storage element into a laser, the discharge of the first energy storage element essentially furnishing a flattop current pulse to the laser and the discharge of the second energy storage element essentially establishing a rise time characteristic of the current pulse(fig. 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the recited capacitance and voltage values for the capacitors disclosed in Minamitani for improved pulse rise time in a pulse laser device as disclosed in

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Minamitani(abstract).

Allowable Subject Matter

5. Claims 2-9, 13, 18 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter. The following limitations are primarily responsible for distinguishing these claims over the prior art.

Regarding claims 2-4 and 7, the limitations concerning the switch controlled circuit path comprising a switch having a first terminal coupled to a first terminal of the laser diode, a second terminal coupled to a first terminal of the first capacitor and to a first terminal of the second capacitor, and a second terminal of the laser diode being coupled to a second terminal of the first capacitor and to a second terminal of the second capacitor as recited in claim 2; regarding claims 5-6, the limitations concerning the switch-controlled circuit path comprising a first switch and a second switch, where the first switch has a first terminal coupled to a first terminal of the laser diode and a second terminal coupled to a first terminal of the first capacitor, and the second switch has a first terminal coupled to the first terminal of the laser diode and a second terminal coupled to a first terminal of the second capacitor, and where a second terminal of the laser diode is coupled to a second terminal of the first capacitor and to a second terminal of the second capacitor as recited in claim 5; regarding claim 8, the limitations

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concerning the switch-controlled circuit path comprising a first switch having a floating terminal and a second switch having a grounded terminal, the floating terminal of the first switch being coupled to a first terminal of the laser diode, and the grounded terminal of the second switch being coupled to a second terminal of the laser diode; regarding claim 9, the limitations concerning the switch-controlled circuit path comprising at least one switch that comprises a single switch device, a series circuit of individual switch devices, a parallel circuit of individual switch devices, or any combination of the foregoing; regarding claim 13, the limitations concerning an additional fast voltage discharge stage comprising a third energy storage element having a third energy storage capacity at a third voltage magnitude where the third energy storage capacity is less than the second energy storage capacity, and the third voltage magnitude is greater than the second voltage magnitude, the laser diode being controllably coupled to the third energy storage element as well as to the first energy storage element and to the second energy storage element through the switch-controlled circuit path; regarding claim 18, the limitations concerning establishing a third voltage magnitude in a third energy storage element having a third energy storage capacity where the third energy storage capacity is smaller than the second energy storage capacity, and the third voltage magnitude is greater than the second voltage magnitude, and discharging the third energy storage element into the laser, the discharge of the third energy storage element essentially establishing the rise time characteristic of the current pulse along with the discharge of the second energy storage element; and regarding claim 20, the limitations concerning means for

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establishing a third voltage magnitude in a third energy storage element having a third energy storage capacity that is smaller than the second energy storage capacity, a third voltage magnitude greater than the second voltage magnitude, means for discharging the third energy storage element into the laser diode where the discharge of the third energy storage element essentially establishes the rise time characteristic of the current pulse along with the discharge of the second energy storage element.

Correspondence

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jim Vannucci whose phone number is (571) 272-1820.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (571) 273-8300.

A handwritten signature in black ink that reads "James Vannucci". The signature is written in a cursive style with a large, stylized "J" and "V".

James Vannucci